



SMITHSONIAN INSTITUTION
U. S. NATIONAL MUSEUM

Vol. 106

Washington: 1957

No. 3375

STUDIES IN NEOTROPICAL MALLOPHAGA, XVI: BIRD LICE
OF THE SUBORDER ISCHNOCERA

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The present paper deals with two very interesting groups of Mallophaga parasitic on one of the largest families of Neotropical Passeriformes, the Formicariidae (antbirds). In spite of the fact that this family of birds contains 53 genera and 680 species and subspecies (Peters, Check-List of Birds of the World, 1931), there have been described from it only three species of Mallophaga—two species of *Machaerilaemus* and one species of *Furnaricola* which possibly may have been a straggler from some species of Furnariidae or Dendrocolaptidae.

This family of birds inhabits all varieties of cover ranging from dry, xerophytic scrub to dense, humid jungle and from sea level to timber line all the way from México to Argentina and Chile.

At this point I wish to insert a note respecting the group of Mallophaga for which I erected the genus *Furnaricola* in 1944 and which was placed under the synonymy of *Rallicola* by Hopkins and Clay in 1952 (A Checklist of the Genera and Species of Mallophaga). The species described under *Furnaricola*, and numerous other undescribed specimens in my collection of the same genus are all from hosts belonging to the families Furnariidae and Dendrocolaptidae, with the single exception mentioned above, which was taken on a species of Formicariidae.

A careful examination of the species of this group shows that they are, apparently, closely related to the species of the two new genera

described in this paper that were taken from the Formicariidae. In my opinion they are much nearer to these two genera than to the genus *Rallicola*, in which Hopkins and Clay think they should be placed.

I am not at all reconciled to Miss Clay's theory in attempting to trace the origin and relationship of these species for which sufficient proof seems to be wanting. The fact that they resemble superficially many species of *Rallicola* may very readily be a case of parallel development of two offshoots from entirely different ancestors. It does not seem logical that two families of birds so far apart systematically as the rails and ant birds could possibly have acquired the same genus of mallophagan parasites, either by direct inheritance or secondary infestation. If *Furnaricola* contained but one or two species their presence could be accounted for by secondary infestation, but such could scarcely account for a widespread genus on two families of passerine birds as we have in this case.

I have had in my collection for some time a considerable number of Ischnocera from the ant birds but have never been able satisfactorily to allocate them generically. Since it is clearly evident that they form two closely knit entities which cannot be made to fit into any known genera, I have erected two new genera to receive them.

Formicaphagus, new genus, is the larger of the two new genera, containing 15 species, and is parasitic on many and possibly all genera of the Formicariidae except the genus *Formicarius*, on which an entirely different insect is found. I have specimens of this larger genus from 9 genera and 16 species and subspecies of ant birds, ranging from the tiny arboreal genus *Myrmotherula* to the large, terrestrial genus *Pittasoma*.

Formicaricola, new genus, the smaller of the two new genera, is erected for the mallophagan species parasitic on birds of the genus *Formicarius*. This smaller genus apparently is restricted to *Formicarius*, since it was taken only on that genus, and no species of the larger genus (*Formicaphagus*, new genus) has been taken on any *Formicarius*. The new genus *Formicaricola* is represented by seven species taken from seven species and subspecies of the avian genus *Formicarius*, ranging from northern México to Bolivia.

The two new genera have certain characteristics in common, but differ very strikingly in others, as will be shown in their characterizations. The species of both genera form remarkably homogenous groups, and no species of either genus has been taken by me on any other family of birds.

The species of both new genera, while resembling each other closely, are separated easily by a combination of various small characters. The male genitalia are especially useful in this respect, since no two

of the 12 species represented by males have similar genitalia.

In all the years of my collecting I have taken no Ischnocera from any Formicariidae other than those included in these two new genera, with but a single exception. The exception is a series of 11 specimens of both sexes of a species of *Sturnidoecus* that were taken on *Batara cinerea excubitor* collected at Samaipata, Bolivia. There is no question as to the host, since I distinctly recollect having removed the lice from the bird before it was skinned. The circumstances were unusual, since it was my first taking of the genus *Batara*.

It therefore seems logical to suppose that these two genera of Mallophaga are the common parasites of the Formicariidae, the one found only on the genus *Formicarius* and the other on all the remaining genera, as far as now known.

The presence of this very distinct genus of Mallophaga on *Formicarius* and the absence of the other genus found on the rest of the family present a problem which the ornithological systematist may very well ponder with care, since there is a remote possibility that *Formicarius* may not be a Formicariidae at all. These birds certainly have a very different appearance in life from all other Formicariidae, although their whistling call-note does resemble a few species of the genus *Grallaria*.

I believe that a very careful study of the anatomy and osteology of this genus of birds should be made, as well as of its nidification. To my knowledge, I have never seen the nest or eggs of any *Formicarius*.

With one exception, all of the species of Mallophaga described in this paper were taken by the author from birds collected by him or his assistants, so that it has been possible to detect most of the obvious cases of "straggling" that inevitably present themselves. In many cases of this so-called "straggling" the true host was easily detected by making a check of the species of birds collected on the same date, but when such measures failed to give a satisfactory solution the lice were discarded in most cases.

All measurements given are in millimeters and decimals thereof, and were made with a properly calibrated eye-piece micrometer. All figures presented are from drawings made by the author, who is responsible for any errors which may later be discovered. The drawings were all made by means of exact measurements taken with the eye-piece micrometer; no "camera lucida" was used.

Formicaphagus, new genus

GENOTYPE: *F. picturatus*, new species. Host, *Myrmeciza i. im-maculata*. Small species of Ischnocera parasitic on many genera of the avian family Formicariidae (except the genus *Formicarius*).

This genus seems to be related to the philopteroid group, and resembles superficially the genus *Sturnidoecus*, from which it differs, however, in many important characters, as will be shown.

Head about as wide as long, with circular, expanded temples more or less as wide as the abdomen in the male, slightly less in the female. Preantennal portion of head converges sharply to a narrow, bifid frons, more or less deeply incised. Premarginal carinae usually wide but short, terminating at the preantennal suture encircling the posterior portion of the anterior plate, which is flatly convex and does not extend beyond the entrance to the bucal cavity. The anterior plate is uniformly pigmented, without dividing lines, with half its length extending beyond the tips of the premarginal carinae, and with exposed portion encircled by a narrow hyaline border.

The inner premarginal carinae are well developed, extending from anterior mandibular condyles and base of premarginal nodi to tips of frons. In most of the known species there is a conspicuous, heavily chitinized, oval incrassation on the outer side of these carinae, in median portion of anterior plate. A sharply defined suture cuts diagonally across the premarginal carinae, just in front of nodus, from the margin of the head to a point midway between the mandibular condyles. The temporal carinae (dorsal) are absent, but in all species a well-defined carina curves backward and inward from the premarginal nodus to the posterior mandibular condyle (see figures); the occipital carinae (sternal) are always present, rather narrow, and poorly chitinized, ending usually at anterolateral margin of prothorax. Gular plate large, varying greatly in detail of attachment to prothorax.

Prothorax small, much wider than long, and more or less quadrangular. Pterothorax, with strongly divergent sides, straight to convex, and, with few exceptions, posterior margin produced to a point medially.

Abdomen elongated oval in both sexes, with sharply defined, deeply colored pleurites which are furnished with conspicuous "heads." Tergites lightly chitinized and separated medially; sternites entire but separated from pleurites and almost invisible except for the genital plate and one or two sternites anterior to it. Terminal abdominal segment of female much wider than long, with rounded sides and slightly indented tip. In the male, segment VIII is small, with concave sides and rounded tip. Chaetotaxy of the abdomen (in posterior half) differs in the sexes. In the female there is a sternal row of seven to nine fine setae on each side of segment VIII, in the anterior portion, which point inward and backward and which must not be confused with the pair of heavy spines found in this area in the genus

Rallicola. The circular posterior margin of the genital plate of the female is sparsely set with short, fine setae.

The male genitalia are of an exceedingly peculiar type, which seems to be unique. The basal plate is short and rather wide; the parameres very small and globular in shape (see figures); and the mesosome is more strongly developed, with a large penis and rather heavy supporting structures.

REMARKS: The genus *Formicaphagus*, as now known, is an extremely homogenous one, most extraordinarily so, considering the fact that the species comprising it are parasitic on very distinct genera of hosts, but all belonging to a single family. It is possible that some of the forms here described are only subspecifically distinct from some of the others, but no attempt has been made to make such distinctions. A very careful analysis of their structures shows an amazing number of small differences between them. The genitalia of all of the known males are decidedly different, a very significant feature. Considering these facts it has seemed best to classify them all as distinct species until more material has been assembled from the many species of the host family.

Formicaphagus picturatus, new species

FIGURES 1, a, b; 4, e

TYPES: Male and female adults from *Myrmeciza i. immaculata* (La Fresnaye) collected by the author at Bellavista, Santander N., Colombia, July 4, 1943 (USNM).

DIAGNOSIS: The head as long as wide in male (0.445), wider than long in female (0.467×0.48). The premarginal carinae are wide, with large nodi; anterior plate rather small, widest at tips of pre-marginal carinae then converging posteriorly with straight sides; preantennary margin of head concave.

Sides of prothorax and pterothorax nearly straight, the latter with sides strongly divergent and posterior margin with straight sides running to an acute median point.

The abdominal pleurites are wider in the female, both dorsally and ventrally, and are less pitchy black dorsally; the "heads" are much longer in the female, especially the ventral portion. Whole abdomen very clear (excepting pleurites), with tergites almost invisible; the only visible sternites are the genital plate and sternite V, the genital plate covering the median portion of sternites VI to VIII.

In the male genitalia the basal plate tapers from near basal portion to the narrowly rounded tip; the parameres are of medium size, encircled by a strongly chitinized carina, and the component parts of the mesosome are slender and more delicate than in most species of the genus.

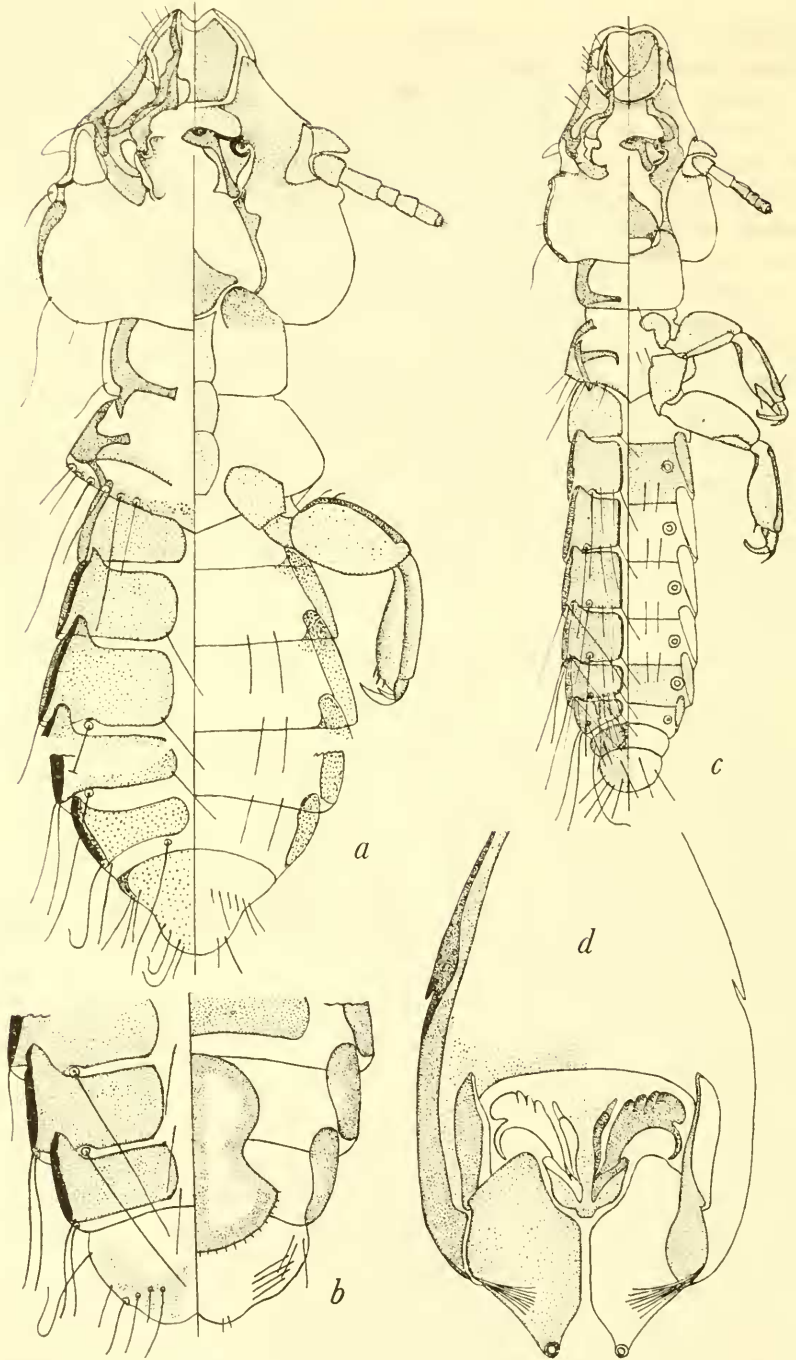


FIGURE 1.—*a, b*, *Formicaphagus picturatus*: *a*, head, thorax, and portions of abdomen of male; *b*, tip of abdomen of female. *c*, *Formicaricola analoides*, body of male. *d*, *Formicaricola beni*, genitalia of male.

For measurements see table 1 (p. 429). It has not seemed necessary to present measurements of the male genitalia.

The species is represented only by the male holotype and female allotype.

Formicaphagus laemostictus, new species

FIGURE 2,a

TYPE: Female adult from *Myrmeciza laemosticta bolivari* de Schauensee, collected by the author at Puerto Valdivia, Antioquia, Colombia, May 4, 1948 (USNM).

DIAGNOSIS: One of the larger species (body, $1.89 \times .52$; head, 0.495×0.485), with head longer than wide, the reverse of *F. picturatus*. The preantennal margin of head is straight; the anterior plate is much wider in anterior portion, where the sides are convex, while in posterior portion the sides are straight and parallel; a small, darker colored shield covers anterior portion, this character being present in but three of the known species of the genus.

The premarginal carinae are VERY WIDE, and there are well-developed postmarginal carinae not present in all species.

The sides of both thoracic segments straight, with pterothorax narrower and less divergent than in *picturatus* (0.395 against 0.412); sides of posterior margin of pterothorax straight, with acute median point.

Abdomen rather long and slender (1.16×0.52); pleurites pitchy black (except pleurite I) and of medium width, with "heads" very short on dorsal portion and long on the ventral portion. Tergites and sternites faintly pigmented except genital plate and sternite V; setae along posterior margin of genital plate short and peglike. The patch of setae at each side of sternite VIII consists of a row of seven setae set parallel to margin, and pointing diagonally backward and inward, and with two others between this line of setae and the margin of segment, pointing backward.

The species is represented by the male holotype, one female paratype, and one female from another individual of the type host collected at Zaragoza, Antioquia, Colombia.

Formicaphagus magnus, new species

FIGURE 2,b

TYPE: Female adult from *Myrmeciza laemosticta palliata* Todd, collected by the author at La Palmita, Norte de Santander, Colombia, Aug. 14, 1916 (author's collection).

DIAGNOSIS: Distinguished by the large head, very large anterior plate, partially pigmented premarginal carinae and nodi, and narrow, faintly pigmented abdominal pleurites. The head is longer than

wide (0.553×0.532); the anterior plate of same shape as in *laemostictus* but much larger and without anterior shield; the premarginal carinae are wide but pigmented only along the inner margin, while the nodi are chitinized in posterior portion only. The incrassations on inner carinae, over anterior plate, are smaller than usual; the pre-antennal margins of head slightly undulating, with sides of anterior plate extending latterly beyond line of head; postmarginal carinae also present, but differing in pattern from those of *laemostictus* (see fig. 2,b).

Prothorax with sides flatly convex; pterothorax very wide (0.47) with convex sides, that portion posterior to the lateral angles shortened and with sides straight to rounded median tip (fig. 2,b).

Abdominal pleurites narrow, ventral portion scarcely wider than dorsal; "heads" short, tapering to a slender point which curves inward and backward, forming a semicircle. Structure of tergites and sternites obscured by foreign matter. Setae along posterior margin of genital plate short and thick; ten ventral setae on sides of sternite VIII, paralleling lateral margin, and two more between this line and the margin, all pointing diagonally backward and inward and all longer than those of *laemostictus*.

The species is represented by the female holotype only.

Formicaphagus angustifrons, new species

FIGURES 2,d; 5,c; 6,d

TYPES: Male and female adults from *Myrmeciza h. hemimelaena* Sclater, collected by the author at Santa Ana, Rio Coroico, Bolivia, July 21, 1934 (author's collection).

DIAGNOSIS: One of the smallest species of the genus (body of male, 1.25×40 ; of female, 1.40×0.40 ; head of male, 0.39×0.39 ; of female, 0.417×0.417); the abdomen of the female is longer but no wider than in the male.

Temples rounded; occipital margin deeply reentering at sides of prothorax, but occiput convex; frons very narrow; preantennal margins slightly concave; anterior plate small, widest in posterior portion and converging sharply to the narrow tips; premarginal carinae narrow, as well as the inner carinae which support the anterior plate; incrassations elongated and not reaching to the lateral margins of the plate; no postmarginal carinae; eye very small, with short, thickened seta at anterior corner. (In the figure of the head of this species the temporal and occipital carinae occupy reversed positions.)

Thoracic segments small, with sides slightly convex; pterothorax only 0.31 in width in the female and 0.29 in male; posterior margins straight and median point rounded.

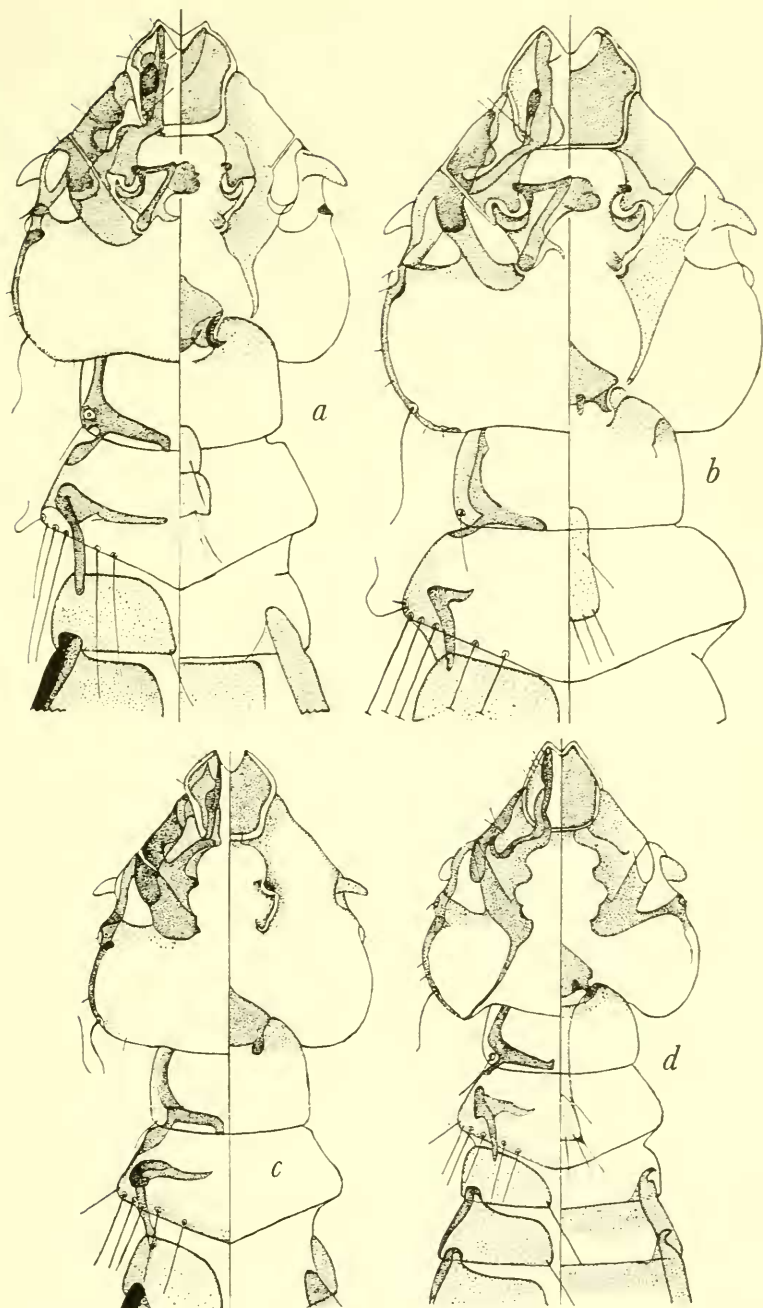


FIGURE 2.—Head, thorax, and certain abdominal segments: *a*, *Formicaphagus laemostictus*, female (segments I, II); *b*, *F. magnus*, female (segment I); *c*, *F. peruvianus*, male (segment I); *d*, *F. angustifrons*, male (segments I-III).

Abdomen quite clear, but tergites and sternites more clearly defined than in many species; pleurites dark brown, blacker in the male, and with ventral portion twice the width of the dorsal (more than twice in female); pleurites in segment I well defined but not deeply pigmented; the "heads" are short and rounded on dorsal portion, longer on ventral portion and with the attenuated tips curving outward.

The marginal setae of the genital plate in female are longer and set closer together than in the preceding species; the setae at posterior, inner corner of tergites are very long, as well as the single, pustulated seta on posterior margin of tergites III to VII, just inside the pleurites. The sternal setae at sides of VIII are also long and slender, some as long as width of segment, and average seven in number.

In the male the setae of the abdominal tergites and of segment VIII are also unusually long; the genitalia are small, the basal plate being short with broad, rounded apical end; parameres globular, with narrow, deeply pigmented marginal carina; mesosome very simple, but portions not clearly visible (fig. 6,*d*). The species is represented by male holotype, female allotype, and one male and five female paratypes.

Formicaphagus huilae, new species

FIGURES 4,*a*; 6,*h*

TYPE: Female adult from *Myrmeciza longipes boucardi* Berlepsch, collected by the author at La Plata, Huila, Colombia, Apr. 10, 1952 (USNM).

DIAGNOSIS: A medium sized species (body 1.60×0.43 ; head 0.425×0.423), strikingly colored. The head, thorax, and legs are pale, clear brown; the carinae of head and legs darker brown, while those of thorax are almost pitchy black; the abdomen is uniformly translucent, excepting the pleurites, genital plate, and lateral margins of segment VIII; the pleurites are rather wide, pitchy black, slightly wider ventrally in posterior portion, and sharply defined on inner side; the "heads" are short dorsally and bluntly pointed, but twice as long ventrally and faintly colored; genital plate and margins of segment VIII pale brown; sternite V is faintly visible, and all sternites are clearly and widely separated from pleurites. The setae of genital plate are normal, rather abundant, and thickened basally; ventral setae on sides of segment VIII are rather short and slender, six in the row parallel to margin and pointing inward, with two near margin, pointing backward.

The species is represented by the female holotype and two female paratypes.

FIGURE 3.—Head, thorax, and certain abdominal segments of female: *a*, *Formicaphagus splendidus* (segment I); *b*, *F. grallariae* (segments I–III); *c*, *F. minutus* (segments I–III); *d*, *F. thoracicus* (segments I, II).

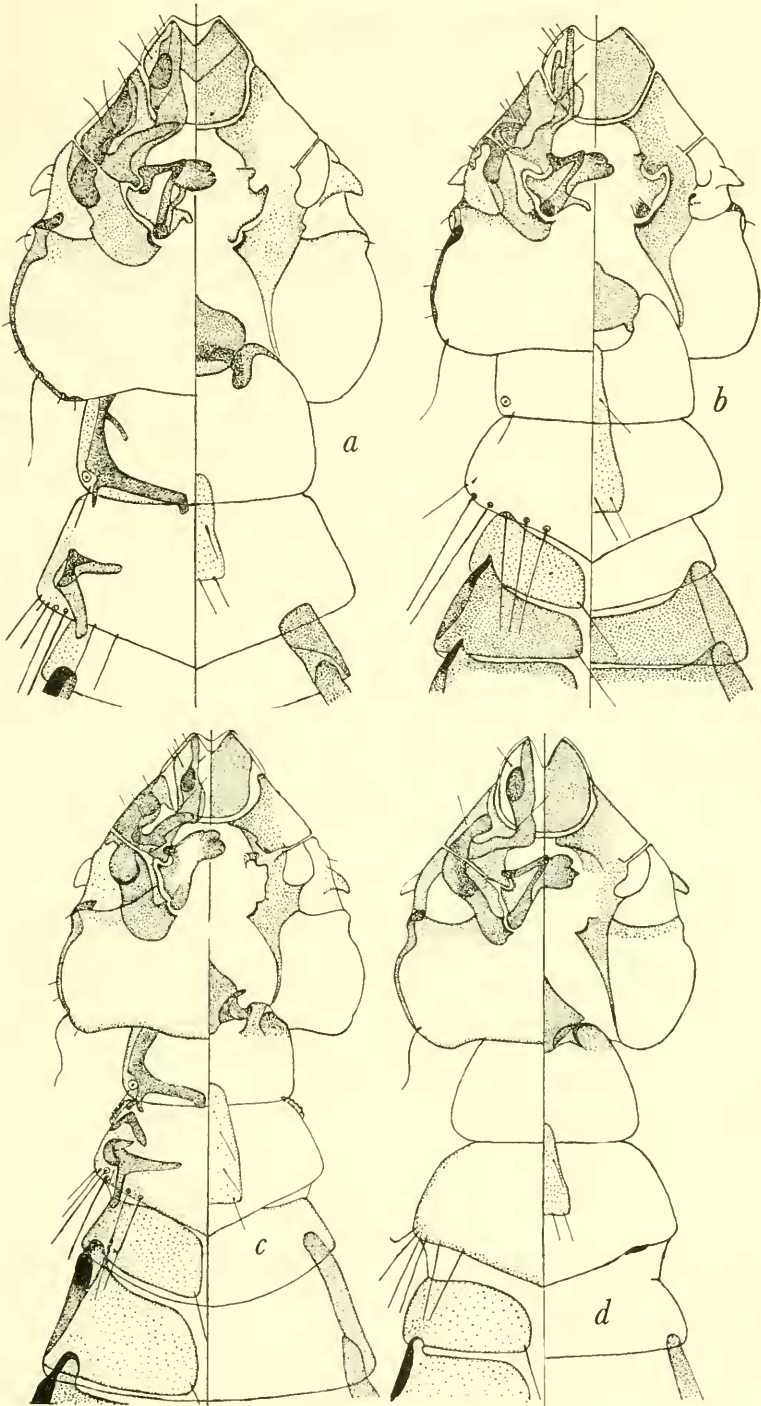


FIGURE 3.—Explanation on facing page.

Formicaphagus latifrons, new species

FIGURES 4,b; 5,h

TYPE: Female adult from *Cercomacra n. nigricans* Selater, collected by the author at Río Vieja, Bolívar, Colombia, Feb. 24, 1947 (USNM).

DIAGNOSIS: One of the larger species, equal in size to *F. magnus*, with practically the same head and body measurements except width of head at coni, which is less (0.41 against 0.45).

The head is wide at tips of premarginal carinae, with preantennary margin sinuate; anterior plate longer than wide, widest at tips of premarginal carinae, from which point sides converge to rounded tips of frons and backward to posterior margin. Premarginal carinae wide, with inner margin irregular in outline; nodi large, with posterior half much more deeply pigmented; inner carinae, which support anterior plate, are wide, covering almost half of that plate and with the large incassations reaching the lateral margins. Postmarginal carinae present but faintly colored; eyes small, with short seta; attachment of gular plate to prothorax somewhat unusual (fig. 4,b).

Head, legs, and thorax pale, translucent brown, with carinae darker brown; abdomen clear, except the large pleurites which are pitchy black dorsally and dark umber brown ventrally, the ventral portion being much wider than the dorsal portion and with undulating inner margin; "heads" short on dorsum, very long on ventral face, and clear brown. Tergites uncolored, with only genital plate and sternite V visible; lateral portion of VIII light brown. Abdominal setae unusually short, those of genital plate normal; the lateral, sternal setae of VIII are eight in number, short, and all point inward and slightly backward.

The species is represented by the female holotype only.

There is a single female from *Cercomacra t. tyrannina*, collected at Santa Rosa, Bolívar, Colombia, which is so close to the type of *latifrons* that it seems useless to attempt its separation. All measurements are practically the same except width of head at preantennary suture, which is greater (0.38 against 0.365), and abdomen shorter and narrower (never a reliable measurement). The number of ventral setae on segment VIII is the same. I have, therefore, identified this female as *F. latifrons*.

Formicaphagus clypeatus, new species

FIGURES 4,c; 5,d; 6,c

TYPES: Male and female adults from *Pernostola leucostigma brunnei-ceps* (Zimmer), collected by the author at La Pampa, Perú, July 5, 1931 (author's collection).

DIAGNOSIS: One of the smaller species (body, 1.78×0.55 ; head, 0.445×0.445). Body coloring the same as in preceding species.

The preantennary margin straight; hyaline border of anterior plate wider than usual and with much more than half of the plate extending beyond the tips of the premarginal carinae (usually half or less); this plate is longer than wide, with deeply incised, wide frons, and

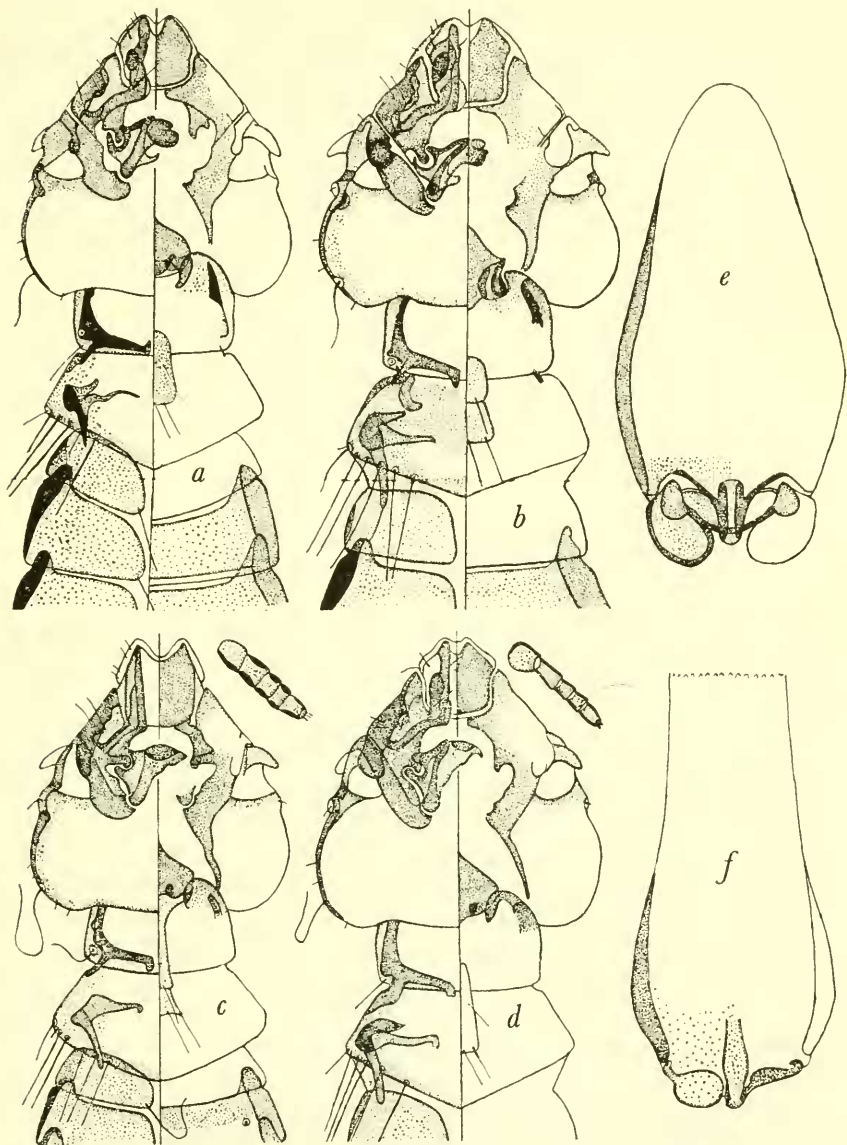


FIGURE 4.—*a-d*, Head, thorax, and certain abdominal segments: *a*, *Formicaphagus huilae*, female (segments I-III); *b*, *F. latifrons*, female (segments I, II); *c*, *F. clypeatus*, male (segments I, II); *d*, *F. bolivianus*, female (segment I). *e, f*, Male genitalia: *e*, *F. picturatus*; *f*, *F. minutus*.

with sides straight and parallel for greater portion; the inner carinae are unusually narrow, very straight in anterior portion and lack entirely the large incassation so prominent in most species (fig. 4,c); antennae unusually thick (compare *c* and *d* of fig. 4; *d* being about normal); eye obsolete, but setae present; conic small.

Prothorax small, especially short (0.13×0.26); pterothorax with straight, divergent sides, broadly rounded lateral angles, and sides of posterior margin flatly convex with rounded median tip.

Color of abdomen as in preceding species, with pleurites of average size, largely pitchy black dorsally, and but slightly wider ventrally, more so in posterior portion; "heads" short and bluntly pointed on dorsal face but much longer ventrally, some of them curving outward apically.

Abdominal setae shorter than average; the ventral patches on sides of sternite VIII average nine¹ in number, are short, and most of them point backward; there are also five dorsal setae in a transverse row on each side of segment VIII, all set in small, clear pustules. These latter setae are present in all species, but the number varies (usually three) with inner one always the longest.

The species is represented by the male holotype, female allotype, and one male paratype.

Formicaphagus peruvianus, new species

FIGURES 2,c; 6,a

TYPE: Male adult from *Myrmotherula schisticolor interior* (Chapman), collected by the author at Eneñas, Perú, Mar. 3, 1930 (author's collection.)

DIAGNOSIS: One of the group with small head, only *minutus* and *angustifrons* having smaller (0.412×0.402). Differs from *angustifrons* in having whole occipital margin of head convex instead of deeply emarginate at sides of occiput; the anterior plate is much wider in the anterior portion than in the posterior portion, the reverse of *angustifrons* (see figs. 2,c and 2,d); the head is much wider at conic (0.337 against 0.295); pterothorax slightly larger than both species mentioned above, with sides slightly concave and posterior margin straight. Abdomen longer than in *angustifrons* and *minutus*, and wider than in *angustifrons*; color normal; pleurites large and pitchy black dorsally, with sternal portion considerably wider; "heads" of pleurites short both dorsally and ventrally, the ventral portion being weakly pigmented.

In the genitalia the basal plate is very similar to that of *clypeatus* and *angustifrons*, but longer than in latter; the parameres are similar in size and shape to those of *angustifrons* but lack the dark marginal

¹ Segments VII and VIII are fused so closely that the line of fusion is not always visible. The setae are on segment VIII.

carina; mesosome very different, resembling somewhat that of *picturatus* but with a much smaller penis.

The species is represented by a single specimen, the male holotype.

Formicaphagus minutus, new species

FIGURES 3,c; 4,f; 6,g

TYPES: Male and female adults from *Herpsilochmus rufomarginatus frater* Sclater and Salvin, collected by the author at Upata, Venezuela, Feb. 22, 1910 (author's collection).

DIAGNOSIS: One of the group of small species, with body larger than *angustifrons* and *clypeatus*, but head smaller than in the latter (male, 0.402×0.38 against 0.434×0.412 ; female, 0.423×0.434 against 0.434×0.434); the head is longer than wide in the male and wider than long in the female.

Sides of head, between conic and tips of frons, forming a straight line; anterior plate small and similar to that of *thoracicus* except that frons is wider and the incassations smaller; premarginal carinae wide and short, with nodi large and circular; no postmarginal carinae; the carinae uniting premarginal nodi and posterior mandibular condyles very wide.

Prothorax short, with sides flatly convex and almost parallel; pterothorax small, being especially narrow (0.16×0.31).

Abdomen of normal shape and color, the pleurites well developed, about equal in the sexes and pitchy black dorsally, with ventral portion wider and paler; all setae rather short and slender, except those around posterior margin of genital plate which are slightly longer than usual; the ventral patches of setae on each side of segment VIII contain a longitudinal row of seven setae, with two smaller ones near margin which point backward.

The male genitalia are quite different from the other known species, with basal plate much longer, with wide, heavily chitinized marginal carinae on swollen basal portion; the parameres are oval in shape, very similar to those of *peruvianus* but without marginal carinae; the mesosome is very rudimentary, merely an undulating transverse bar which supports an unusually large penis.

The species is represented by the female holotype, male allotype, and one female paratype.

Formicaphagus thoracicus, new species

FIGURE 3,d

TYPE: Female adult from *Gymnopithys leucaspis bicolor* (Lawrence), collected by the author at Quibdó, El Chocó, Colombia, Mar. 13, 1918 (author's collection).

DIAGNOSIS: Sides of head straight between conic and anterior plate, which is circular in shape, with deeply incised frons, wide supporting carinae, and large incrassations; premarginal carinae with marginal half faintly pigmented, also outer portion of nodi, which are semi-circular in shape, the tips curving inward; postmarginal carinae present but pale.

Prothorax narrower in anterior portion, with convex, divergent sides (an unusual shape); pterothorax large (0.21×0.36), with rounded sides and short posterior portion.

The abdomen is large (1.21×0.61), with narrow pleurites, blackish dorsally and wider ventrally in anterior and posterior portions.

The type, and only specimen, is in rather poor condition, having been demounted for clearing, and with much of the chaetotaxy missing, so that the number of setae in ventral patches of sternite VIII cannot be determined.

The species may be distinguished by the unusual shape of the anterior plate, the carinae of the head, and the shape of the thoracic segments.

Formicaphagus brevifrons, new species

FIGURE 5,a; 6,e

TYPES: Male and female adults from *Pyriglena leucoptera* (Vieillot), collected by Dr. Werneck at Serra de Angra, State of Rio de Janeiro, Brazil (Hopkins collection).

DIAGNOSIS: The largest of the known species of the genus (female, 2.12×0.67 , with abdomen 1.34 ; male, 1.54×0.49). Head wider than long in both sexes, with swollen temples, and in female much wider at base of conic.

Anterior plate wider than long, wider at tips of premarginal carinae; frons narrow and median incision shallow; the premarginal carinae are of unusual shape and rather complicated for description (see fig. 5,a); carinae connecting premarginal nodi with posterior mandibular condyles narrow.

Prothorax with sides and posterior margin convex; pterothorax with sides convex and strongly divergent; each side of posterior margin concave and with median point rounded, this character more pronounced in the male.

Abdomen strongly oval in both sexes, with wide pleurites, the light brown ventral portion being more than twice the width of the pitchy black dorsal portion.

The tergites are but slightly chitinized, but sternites IV and V are much more deeply colored than usual.

The chaetotaxy of the entire body is unusually short and coarse, and blackish in color; the patches on each side of segment VIII are

short and coarse, with irregular longitudinal line of six to seven, and one outside the line.

The genitalia of the male allotype, the only male, is not clearly visible due to a covering of extraneous matter, but it seems to be as

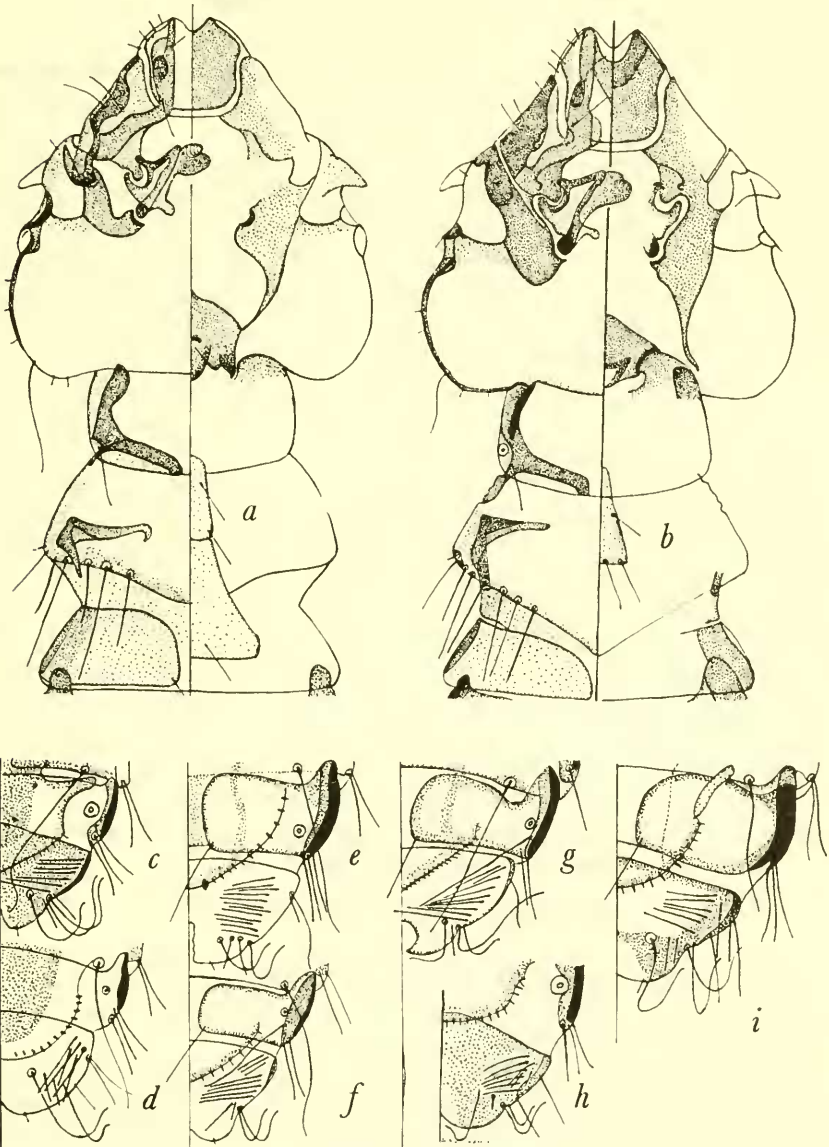


FIGURE 5.—*a, b*, Head, thorax, and abdominal segment I: *a*, *Formicaphagus brevifrons*, female; *b*, *F. pittasomae*, female. *c-i*, Dorsosternal view of tip of female abdomen: *c*, *F. angustifrons*; *d*, *F. clypeatus*; *e*, *F. bolivianus*; *f*, *F. grillariae*; *g*, *F. splendidus*; *h*, *F. latifrons*; *i*, *F. pittasomae*.

shown in figure 6,*e*, although the shape of the parameres, if correct, is very unusual.

In addition to the female holotype there is one female paratype.

Formicaphagus bolivianus, new species

FIGURES 4,*d*; 5,*e*

TYPE: Female adult from *Myrmotherula axillaris fresnayana* (d'Orbigny), collected by the author at Santa Ana, Río Coroico, Bolivia, July 26, 1934 (author's collection).

DIAGNOSIS: A medium sized species with head as wide as long (0.445) and somewhat triangular in shape; the preantennal margin irregular in outline (fig. 4,*d*); frons very narrow, with scarcely any median depression; anterior plate small, with sides swollen latterly at tips of premarginal carinae and with less than half its length exposed. Premarginal carinae and nodi wide and strongly pigmented; the inner carinae supporting the anterior plate narrow, but incrustations quite large; conic very small, with greater portion under head; eye very minute (shown too large in figure); postmarginal carinae present but poorly pigmented.

Prothorax rather large (0.13×0.26), with slightly convex sides; pterothorax small (0.22×0.37), with lateral and posterior margins perfectly straight. Abdomen normal, with rather narrow pleurites, pitchy black above, brown and slightly wider below; dorsal "heads" short and bluntly pointed, ventral "heads" much longer and paler; genital sternite rather small and well pigmented but sternites IV and V almost invisible; posterior margin of genital plate an open V-shape, with short, thick setae; the setae of ventral patches on each side of segment VIII unusually abundant, there being eight in the longitudinal row and a cluster of four in anterior portion of segment, all of which are short and most point towards the rear in the holotype, but in the female paratype they are as shown in figure 5,*e*, being longer than in the type specimen.

Formicaphagus grillariae, new species

FIGURES 3,*b*; 5,*f*; 6,*f*

TYPES: Male and female adults from *Grallaria perspicillata intermedia* Ridgway, collected by the author at El Hogar, Costa Rica, Aug. 28, 1906 (author's collection).

DIAGNOSIS: A species of medium size, with head slightly longer than wide in both sexes, and with female not much larger than male. The entire body is clear, pale brown, the abdomen slightly paler, with tergites and sternites clearly defined.

The head, back of conic, has a rather squarish appearance but from the conic the sides converge sharply in a straight line to tips of frons,

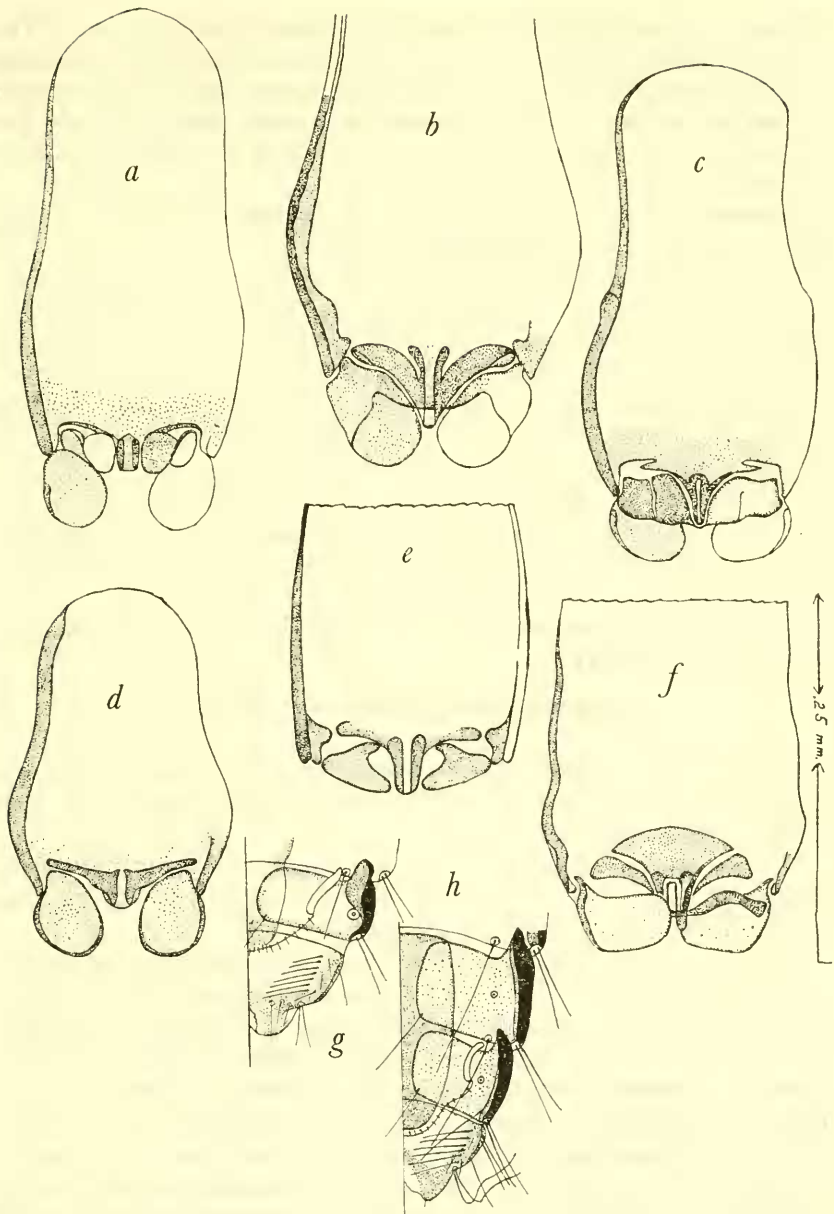


FIGURE 6.—a-f, Male genitalia: a, *Formicaphagus peruvianus*; b, *F. pittasomae*, c, *F. clypeatus*; d, *F. angustifrons*; e, *F. brevifrons*; f, *F. grallariae*. g-h, Tip of abdomen, female: g, *F. minutus*; h, *F. huilae*.

which is of medium width and with shallow emargination. The anterior plate is wider than long, with sides converging both forward and backward from tips of premarginal carinae (fig. 3,*b*); the inner carinae are narrow, widely separated on anterior plate; only the tips of the conia are visible from above; eye small but with seta short and thick.

Prothorax rather narrow (male, 0.34; female, 0.37), with convex sides and posterior margin slightly concave.

The pleurites are narrow dorsally and dark brown, but three times as wide ventrally and not much paler; the dorsal "heads" taper to a slender point, curving inward more noticeably in the male, while the ventral portion is longer, bluntly pointed, and faintly pigmented.

The abdominal chaetotaxy is quite long, especially the patch of eight setae on each side of ventral face of segment VIII that extend more than half way across the segment. Posterior margin of genital plate is V-shaped, rather short, and with setae widely spaced.

In the male, segment VIII is unusually large, with sides straight to the rounded tip. The genitalia are quite distinctive and need no description (fig. 6,*f*).

The species is represented by the female holotype, male allotype, and one male paratype.

***Formicaphagus splendidus*, new species**

FIGURES 3,*a*; 5,*g*

TYPE: Female adult from *Pittasoma michleri zeledoni* Ridgway, collected by the author at Río Siesola, Panamá,² Sept. 10, 1904 (author's collection).

DIAGNOSIS: The body and head are almost the same size as the females of *magnus* (body, 1.95×0.62 ; head, 0.55×0.532), thus being one of the largest known species.

The temples are slightly swollen; the preantennal margins of head form almost straight lines (slightly concave) from conia to tips of frons, which is of medium width and shallow emargination. Anterior plate as wide as long, slightly expanded laterally at middle and with a wide, V-shaped, darker band across anterior portion (fig. 3,*a*). The inner carinae are narrow basally but wide over anterior plate, with large incassations; eye prominent, with seta short and thick.

Prothorax large (0.21×0.33) with convex sides; pterothorax of medium size, with *straight sides and posterior margins* and with lateral angles narrowly rounded. Abdominal sclerites normal; dorsal face of pleurites narrow and black, ventral face twice as wide as dorsal face and brown; tergites set closely together, both transversely and longitudinally. Segment VIII unusually short and wide; ventral

² This host was collected on the west side of the Río Siesola in territory which at that time belonged to Costa Rica but has since been ceded to Panamá.

setae at sides 9-10 in number, all pointing inward and of various lengths, the anterior ones the shorter. Posterior margin of genital plate an open V-shape, set with numerous short, fine setae (fig. 5,g).

The species is represented by the female holotype and two female paratypes.

Formicaphagus pittasomae, new species

FIGURES 5,b,i; 6,b

TYPES: Male and female adults from *Pittasoma rufipileatum rosenbergi* Hellmayr, collected by the author at Pavarondocito, Antioquia, Colombia, May 19, 1950 (USNM).

DIAGNOSIS: A handsome insect of an almost uniformly translucent brown color, sharply defined, dark brown carinae on head and thorax, and black pleurites, but with abdomen paler than head.

It is one of the larger species, the male being the largest known of that sex (1.75×0.575); the head of the female is almost equal in length to that of *magnus* and *splendidus*, but is wider (0.542×0.553 against 0.553×0.532).

Posterior to the conic head has a quadrangular appearance, with the slightly concave sides of anterior portion converging sharply to the narrow frons; anterior plate longer than wide, very similar to that of *splendidus*; in fact, the whole insect resembles that species, differing as follows: Anterior plate slightly longer; the inner carinae which support it are much narrower, with smaller incassations, and there is an oval projection on inner side of these carinae at base of

TABLE 1.—Measurements (in millimeters) of the species of *Formicaphagus*

Species	Sex	Body length	Head			Prothorax		Pterothorax		Abdomen	
			Length	Width	Width at conl	Length	Width	Length	Width	Length	Width
<i>picturatus</i>	♂	1.49	0.445	0.445	0.337	0.163	0.26	0.197	0.347	0.825	0.456
		2.03	.467	.48	.347	.163	.29	.23	.412	1.11	.52
<i>laemostictus</i>	♀	1.89	.495	.485	.40	.195	.29	.24	.395	1.16	.52
<i>magnus</i>	♀	1.93	.553	.532	.445	.20	.326	.255	.467	1.12	.597
<i>angustifrons</i>	♀	1.25	.393	.391	.295	.11	.217	.152	.293	.673	.402
		1.40	.417	.417	.303	.13	.228	.163	.314	.81	.395
<i>huilae</i>	♀	1.60	.425	.423	.325	.16	.255	.195	.347	.98	.434
<i>latifrons</i>	♀	1.91	.467	.475	.365	.17	.27	.18	.39	1.20	.567
<i>peruvianus</i>	♂	1.53	.412	.402	.337	.14	.23	.195	.326	.89	.445
		1.31	.434	.412	.325	.152	.24	.195	.357	.694	.434
<i>clipeatus</i>	♂	1.44	.434	.434	.337	.163	.25	.195	.35	.781	.477
		1.95	.46	.44	.37	.163	.27	.21	.36	1.21	.61
<i>thoracicus</i>	♀	1.41	.402	.38	.31	.147	.228	.163	.314	.803	.452
		1.68	.423	.434	.345	.155	.244	.185	.326	1.02	.53
<i>brevifrons</i>	♀	1.54	.434	.445	.325	.15	.27	.195	.38	.846	.488
		2.12	.50	.542	.39	.185	.314	.26	.445	1.34	.673
<i>bolivianus</i>	♀	1.78	.445	.445	.337	.13	.26	.228	.37	1.13	.547
		1.46	.445	.434	.326	.163	.26	.195	.357	.785	.467
<i>grallariae</i>	♀	1.57	.477	.467	.358	.163	.285	.22	.37	.90	.51
		1.95	.55	.532	.41	.217	.33	.26	.445	1.13	.62
<i>splendidus</i>	♀	1.95	.55	.532	.41	.217	.33	.26	.445	1.13	.62
<i>pittasomoe</i>	♂	1.74	.52	.516	.39	.185	.303	.217	.402	.992	.575

anterior plate, a character absent in *splendidus* but present in *grallariae* and *magnus*.

The premarginal carinae are wide in *pittasomae* and the pigmentation extends uniformly to the margin of head (figs. 3,*a*; 5,*b*); the manner of attachment of the prothorax to the gular plate is entirely different; carinae of the prothorax decidedly distinct; and there is more contrast of color in the abdomen, the ground-color being clearer and the pleurites blacker. The posterior margin of the genital plate of female in *splendidus* is an open V, with closely set marginal setae, while in *pittasomae* the plate is circular and the setae are longer, coarser, and fewer in number. The patches of setae at sides of sternite VIII in *splendidus* contain 9 setae, all pointing inward, while in the present species there are only 6 setae pointing inward, and 1 backward, near margin.

The male genitalia do not resemble those of any of the known males, and a description seems unnecessary (fig. 6,*b*).

Formicaricola, new genus

Genotype: *F. analoides*, new species. Host, *Formicarius analis saturatus*. Medium sized Ischnocera parasitic on the avian genus *Formicarius* only. Represented by seven species taken from seven species and subspecies of the host genus. In certain characters this genus resembles the preceding one, but after very careful comparison I find it impossible to classify them as congeneric. Species of this genus have a superficial resemblance to *Multicola* and to some of the *Furnaricola* and *Rallicola* but they differ radically from those genera in structure of head and male genitalia, while the females lack the heavy sternal spines in segment VIII so characteristic of *Rallicola*.

I am fully aware that it is not good policy to erect a genus for a group of Mallophaga which are parasitic on a single genus of birds, but in this case there seems to be no alternative, as with the Menoponidae of the genus *Odontophorus* (Phasianidae).

The present genus differs from *Formicaphagus* as follows: Abdomen longer and more slender, nearly parallel-sided; segment VIII of female with sides straight and converging to a deeply incised, bifid tip.

Head much longer than wide; premarginal carinae continued beyond the preantennal suture, to middle of anterior plate; anterior plate more or less quadrangular, with rounded corners and with anterior margin usually as wide as posterior and slightly concave, while posterior margin is flatly convex and never extends beyond entrance to bucal cavity as in *Formicaphagus*.

No trace of the diagonal suture across premarginal carinae in front of nodus; the temporal and occipital carinae are as in *Formicaphagus* as well as the thoracic segments and the pleurites of the abdomen,

but the tergites are more widely separated medially; the sternites also seem to be the same but they are quite impossible to distinguish clearly in this genus due to the heavier pigmentation of the tergites. The chaetotaxy of the last four abdominal segments in the male is more abundant than in the female.

Male genitalia resemble somewhat those of *Formicaphagus* in that the basal plate is short and wide, the parameres are more or less globular, but of quite different shape, and the details of the mesosome differ strongly in the five species represented by males. Unfortunately the five species with male representatives are all from subspecies of *Formicarius analis*. When males have been taken from the other two species, *colma* and *nigricapillus*, they may show important differences, although there are no striking differences between the females of those species and females from the races of *F. analis*.

Formicaricola analoides, new species

FIGURES 1,c; 7,d; 9,c

TYPES: Male and female adults from *Formicarius analis saturatus* Ridgway, collected by the author near Zaragoza, Antioquia, Colombia, Mar. 22, 1948 (USNM).

DIAGNOSIS: This species, the type of the genus, has been quite fully described under the generic characterization. The seven known forms of the genus *Formicaricola* are very similar in general appearance, differing from each other only in many small details, so that one species may resemble several others in shape of head, but have the anterior plate, the cephalic carinae, the thoracic segments or abdominal sclerites quite distinct.

The present species resembles most closely the Costa Rican and Mexican forms from *Formicarius analis umbrosus* and *Formicarius analis moniliger*, but differs as follows: Head smaller than both, wider at tips of marginal carinae and narrower at con; premarginal carinae and nodi differ in shape, as well as postmarginal carinae; pterothorax smaller, with posterior margin straight on the two sides as in *costaricensis* (concave in *mexicana*). Abdominal segment VII in male same shape as in *costaricensis*, but different from *mexicana*, with chaetotaxy of segment VIII different in all three. The anterior margin of segment VIII in the female is convex in *analoides* and concave in *costaricensis* (female of *mexicanus* unknown).

The male genitalia of all three are similar in type but differ in detail, those of *mexicana* resembling more closely those of *analoides*.

The species is represented by the male holotype and female allotype, with other specimens from type host collected at following localities: Regeneración, El Real, and Norosí, Department of Bolívar.

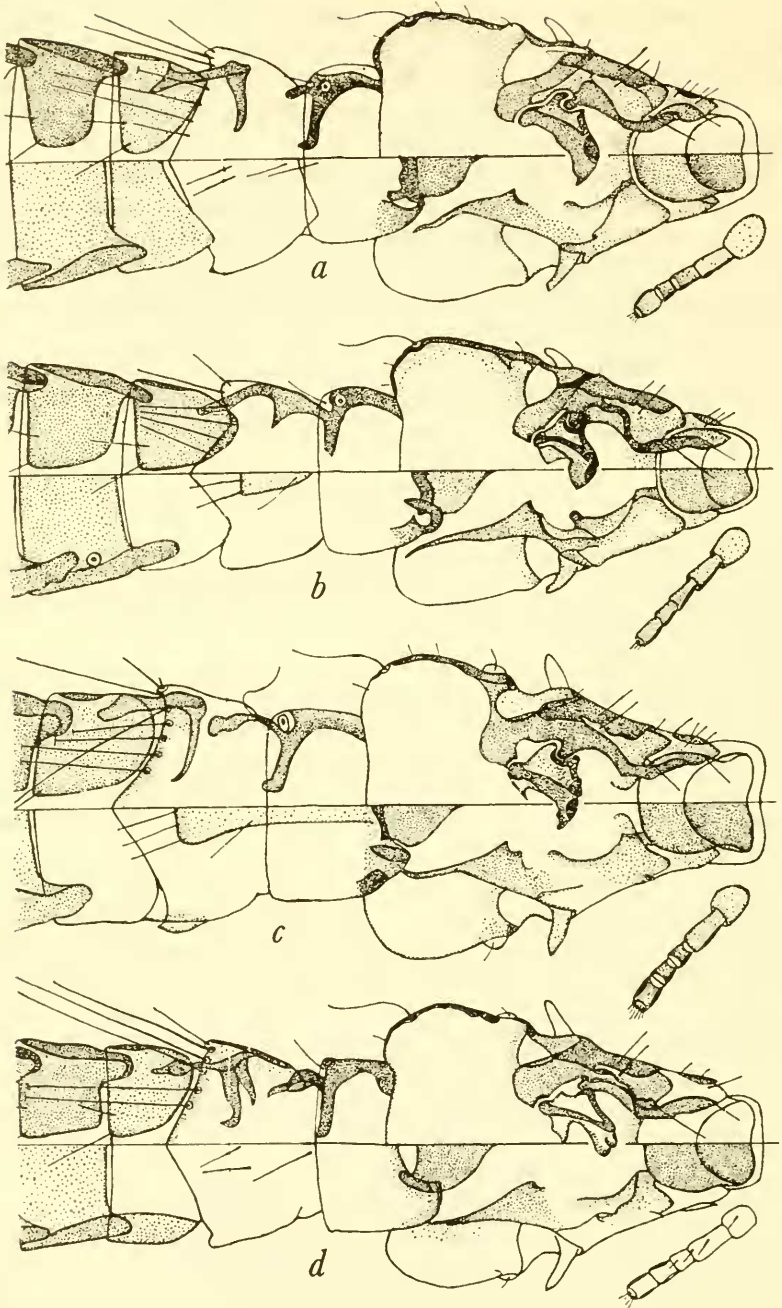


FIGURE 7.—Head, thorax, and certain abdominal segments of male: *a*, *Formicariicola mexicana* (segments I, II); *b*, *F. beni* (segments I, II); *c*, *F. sanctae-martae* (segment I); *d*, *F. analoides* (segments I, II).

Colombia, 4 females; Heights of Aripo, Trinidad, 1 female, and Sabana Mendoza, Venezuela, 2 females. Another male from *F. a. panamensis*, collected at Unguía, Department of Chocó, Colombia, near the Panamá frontier, cannot be distinguished from the series taken on *F. a. saturatus*.

Formicaricola costaricensis, new species

FIGURES 8, *a, g*; 9, *d*

TYPES: Male and female adults from *Formicarius analis umbrosus* Ridgway, collected by the author at Guapiles, Costa Rica, March 1903 (author's collection).

DIAGNOSIS: Under the preceding species are given the differences between it and the present form, which need not be repeated. The other species similar to *costaricensis* is *mexicana*, from which it differs in the male sex as follows: Body longer and narrower at abdomen; head slightly longer, but no other difference in measurements; sides of head anterior to conus strongly concave, not straight; tips of pre-marginal carinae anterior to suture, wider and longer; interior carinae, supporting anterior plate, longer and of different shape; eye prominent (obsolete in *mexicana*); conus larger; hyaline margin of frons transverse instead of flatly rounded as in *mexicana*, with front of anterior plate more deeply emarginate; attachment of prothorax to gular plate distinct; sides of prothorax less convex and sides of pterothorax slightly concave instead of convex; posterior margins of pterothorax straight, not concave; anterior margin of abdominal tergite VII sinuate instead of convex, and abdominal chaetotaxy shorter. The genitalia are decidedly different from all of the other known males (fig. 9, *d*).

The species is represented by the male holotype, female allotype, two female paratypes, and two females from another individual of the type host collected by the author at Guacimo, Costa Rica, April 1903.

Formicaricola mexicana, new species

FIGURES 7, *a*; 8, *i*; 9, *b*

TYPE: Male adult from *Formicarius analis moniliger* Selater, collected by the author at Cerro Tuxtla, State of Veracruz, México, May 5, 1940 (USNM).

DIAGNOSIS: This species has been compared in detail with *analoides* and *costaricensis* under the descriptions of those species and needs no further remarks. The figures presented and measurements given are sufficient additional description.

The species is represented by the male holotype and two male paratypes. The female is unknown.

Formicariicola sanctae-martae, new species

FIGURES 7,c; 8,f; 9,a

TYPE: Male adult from *Formicarius analis virescens* Todd, collected by the author at Los Gorros, at eastern base of Sierra Nevada de Santa Marta, Colombia, on May 6, 1945 (USNM).

DIAGNOSIS: This species resembles *costaricensis* in shape of anterior half of head, the lateral margins being strongly concave, but differs in having much wider frons, much wider and larger anterior plate, which is wider in anterior portion than in posterior section, a character not found on any of the other species taken on *F. analis* and its races. The eye is very pronounced, as in *costaricensis*, but the carinae connecting the premarginal nodi with the posterior mandibular condyles are distinct, as well as the anterior condyles.

The posterior margins of the pterothorax are strongly concave (straight in *costaricensis*). Abdominal segment VII has the same shape as in *mexicana*, with anterior margin sinuate, but with the lateral angles much less acute; segment VIII is wider in anterior portion than any of the other known males and the margin more circular (fig. 8,f).

The male genitalia resemble those of *costaricensis* in shape of basal plate, but they resemble *mexicana* in the mesosome (fig. 9,a-d).

The species is represented only by the holotype, male.

Formicariicola beni, new species

FIGURES 1,d; 7,b; 8,h

TYPE: Male adult from *Formicarius analis analis* (d'Orbigny and La Fresnaye), collected by the author at Santa Ana, Rio Coroico, Bolivia, July 26, 1934 (author's collection).

DIAGNOSIS: The head is decidedly different in shape from all of the other known species, the sides forming a slightly undulating line from temples to the narrow frons; the head also is smaller than in any of the other known males, being especially narrow at the temples (0.477×0.35 , with width at con 0.28); the anterior plate is also the smallest, almost circular in shape, but slightly longer than wide (fig. 7,b).

The posterior margins of the pterothorax are very different, being deeply emarginate just inside the acetabular bars, then running straight to an acute point. The abdomen is more oval in shape, expanding laterally at segments IV to VI; tergites I to V unusually long, with tergites I to III longer than wide; all pleurite "heads" long, especially ventral portion; segment VIII very narrow, with anterior margin convex, and distinctly divided medially, the only species seen with this character; segment IX differs in shape from that of all the other males (fig. 8,h).

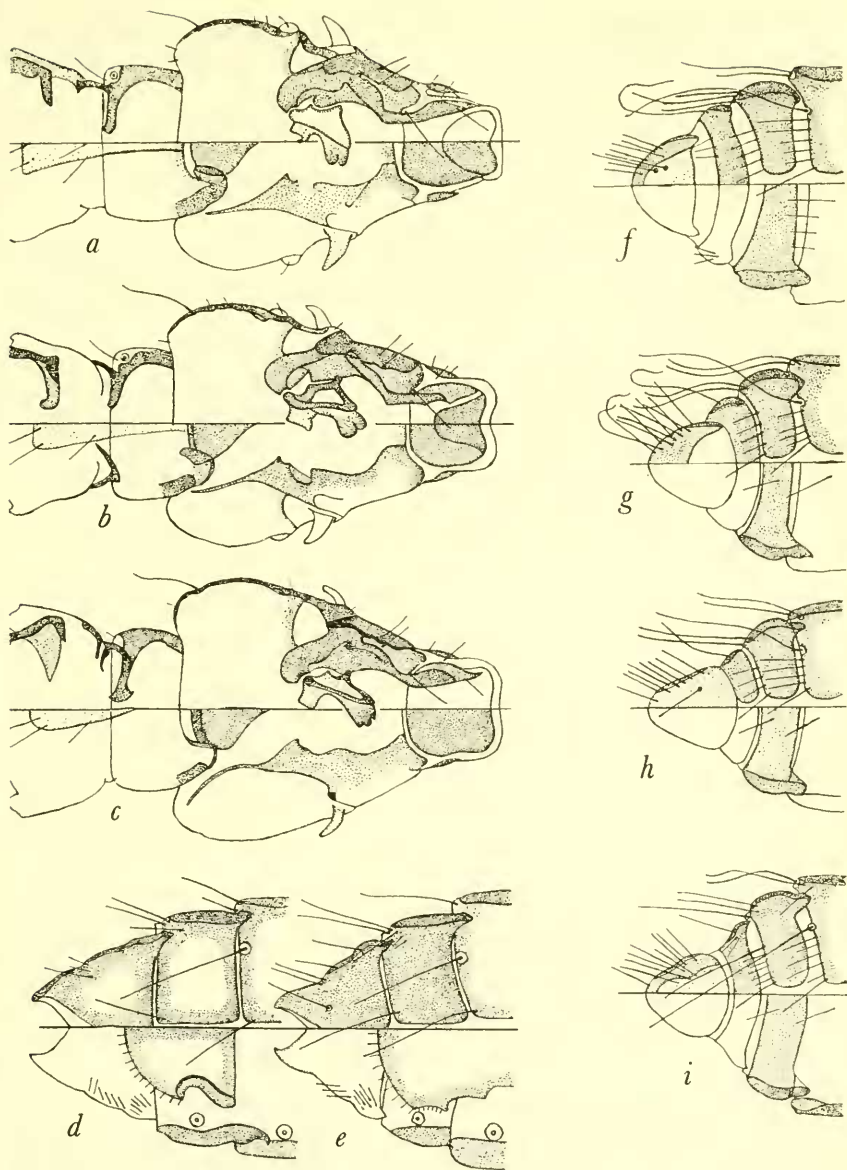


FIGURE 8.—a-c, Head and thorax: a, *Formicariicola costaricensis*, male; b, *F. chocoana*, female; c, *F. colmae*, female. d-i, Tip of abdomen: d, *F. chocoana*, female; e, *F. colmae*, female; f, *F. sanctae-martae*, male; g, *F. costaricensis*, male; h, *F. beni*, male; i, *F. mexicana*, male.

The male genitalia are also unique, being highly complicated, and it is difficult to interpret just what function the different parts perform (fig. 1,*d*).

The species is represented only by the male holotype.

Formicariicola colmae, new species

FIGURE 8,*c,e*

TYPE: Female adult from *Formicarius colma amazonicus* Hellmayr, collected by the author at La Lajita, Río Caura, Venezuela, Nov. 3, 1909 (author's collection).

DIAGNOSIS: This species does not closely resemble any of the other known forms. The head is broad at the temples, with lateral margins convex between temples and preantennal suture; frons wide and transverse, as in *sanctae-martae*; anterior plate large, quadrilateral, with anterior and lateral margins slightly concave

TABLE 2.—Measurements (in millimeters) of the species of *Formicariicola*

Species	Sex	Body length	Head			Prothorax		Pterothorax		Abdomen	
			Length	Width	Width at conus	Length	Width	Length	Width	Length	Width
<i>analoides</i>	♂	1.58	0.49	0.38	0.293	0.163	0.228	0.195	0.282	0.88	0.287
	♀	2.42	.55	.423	.33	.195	.278	.24	.358	1.38	.46
<i>costaricensis</i>	♂	1.73	.52	.402	.303	.185	.25	.206	.303	.955	.37
	♀	2.06	.542	.44	.345	.18	.265	.24	.337	1.26	.37
<i>mexicana</i>	♂	1.65	.51	.39	.30	.16	.24	.20	.303	.96	.41
<i>sanctae-martae</i>	♂	1.84	.54	.412	.326	.206	.262	.215	.33	1.06	.40
<i>beni</i>	♂	1.65	.477	.35	.280	.16	.228	.185	.25	.97	.358
<i>colmae</i>	♀	1.78	.51	.41	.325	.17	.26	.22	.314	1.04	.435
<i>chocoana</i>	♀	2.13	.52	.38	.305	.17	.24	.228	.285	1.39	.434

and entirely without the darker shield covering anterior portion, being uniformly colored and without markings. Premarginal carinae narrow, with inner margins black; the inner carinae, supporting the anterior plate, are narrow at suture, then expand and cover about half of each side of plate, with their pointed tips reaching almost to edge of frons.

Prothorax and pterothorax with convex sides and both rather wide, the latter with posterior margins concave and median point acute. All tergites except I and II wider than long, with inner margins convex and touching in median portion; pleurites and their "heads" slender, the "heads" not extremely long. Segments VIII and IX are shown in figure 8,*e*.

The male is unknown, the species being represented by the female holotype and three female paratypes.

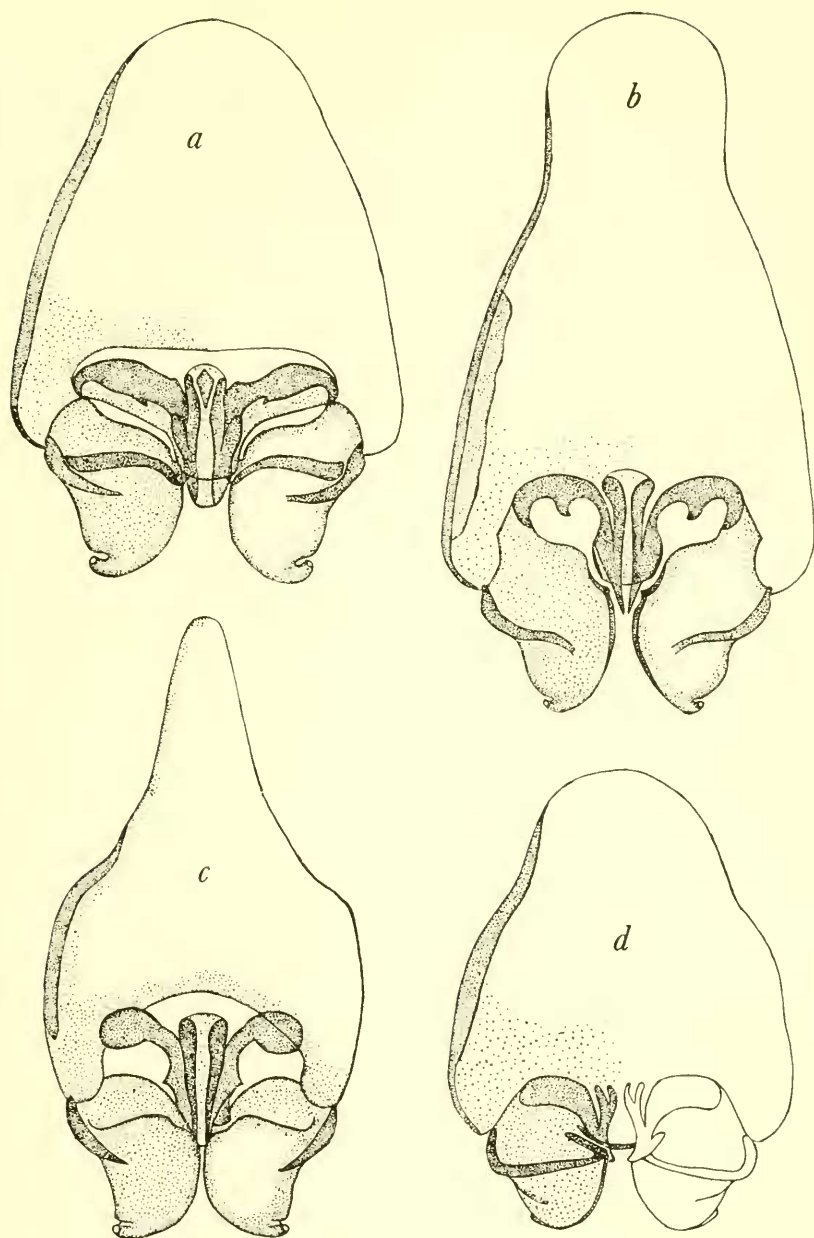


FIGURE 9.—Male genitalia: a, *Formicariicola sanctae-martae*; b, *F. mexicana*; c, *F. analoides*; d, *F. costaricensis*.

Formicariicola chocoana, new species

FIGURE 8, b, d

TYPE: Female adult from *Formicarius nigricapillus destructus* Hartert, collected by the author at Río Jurubidá, Department of Chocó, Colombia, Mar. 18, 1951 (USNM).

DIAGNOSIS: The largest of the known females of the genus except *analoides* (2.13×0.434 against 2.42×0.46). Head of average size, with straight, slightly undulating sides and broad, rather deeply

TABLE 3.—List of hosts with their corresponding parasites

Host	Parasite
<i>Cercomacra</i>	
<i>nigricans nigricans</i> Selater	<i>Formicaphagus latifrons</i>
<i>tyrannina tyrannina</i> (Selater)	<i>Formicaphagus latifrons</i>
<i>Formicarius</i>	
<i>analis analis</i> (d'Orbigny and La Fresnaye)	<i>Formicariicola beni</i>
<i>analis moniliger</i> Selater	<i>Formicariicola mexicana</i>
<i>analis saturatus</i> Ridgway	<i>Formicariicola analoides</i>
<i>analis umbrosus</i> Ridgway	<i>Formicariicola costaricensis</i>
<i>analis virescens</i> Todd	<i>Formicariicola sanctae-martae</i>
<i>nigricapillus destructus</i> Hartert	<i>Formicariicola chocoana</i>
<i>colma amazonicus</i> Hellmayr	<i>Formicariicola colmae</i>
<i>Grallaria</i>	
<i>perspicillata intermedia</i> Ridgway	<i>Formicaphagus grallariae</i>
<i>Gymnopathys</i>	
<i>leucaspis bicolor</i> (Lawrence)	<i>Formicaphagus thoracicus</i>
<i>Herpilochmus</i>	
<i>rufimarginatus frater</i> Selater and Salvin	<i>Formicaphagus minutus</i>
<i>Myrmeciza</i>	
<i>hemimelaena hemimelaena</i> Selater	<i>Formicaphagus angustifrons</i>
<i>immaculata immaculata</i> (La Fresnaye)	<i>Formicaphagus picturatus</i>
<i>laemosticta bolivari</i> de Schauensee	<i>Formicaphagus laemostictus</i>
<i>laemosticta palliata</i> Todd	<i>Formicaphagus magnus</i>
<i>longipes boucardi</i> Berlepsch	<i>Formicaphagus huilae</i>
<i>Myrmotherula</i>	
<i>axillaris fresnayana</i> (d'Orbigny)	<i>Formicaphagus bolivianus</i>
<i>schisticolor interior</i> (Chapman)	<i>Formicaphagus peruvianus</i>
<i>Percnostola</i>	
<i>leucostigma brunneiceps</i> (Zimmer)	<i>Formicaphagus clypeatus</i>
<i>Pittasoma</i>	
<i>michleri zeledoni</i> Ridgway	<i>Formicaphagus splendidus</i>
<i>rufopileatum rosenbergi</i> Hellmayr	<i>Formicaphagus pittasomae</i>
<i>Pyriglena</i>	
<i>leucoptera</i> (Vieillot)	<i>Formicaphagus brevifrons</i>

emarginate hyaline frons; anterior plate slightly wider than long, with anterior edge emarginate, sides convex and posterior margin transverse, and with all four corners rounded; a well-defined shield covers more than half of anterior portion of plate.

The thoracic segments very similiar in shape to those of *costaricensis*, but pterothorax narrower and with posterior margin much like *beni* except that the median point is *rounded*, not *acute*.

The abdomen is the same length as in *analoides*, but narrower; the pleurites are large, black in color both dorsally and ventrally, and with long "heads," much longer ventrally than dorsally. Tergites I to III longer than wide, IV to VI about square, and all are widely separated medially. Segments VIII and IX are shown in figure 8,*d*.

The species is represented by the female holotype, one female paratype, and two females from other individuals of the type host collected by the author near Palestina and Potedó, on the Río San Juan, Department of Chocó, Colombia, on May 5, 1918, and Jan. 3, 1951. The male is unknown.